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Purchasing and supply: An investigation of risk management performance

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ABSTRACT

In a networked environment, the ability to develop and sustain relationships with suppliers is a critical success factor as well as a challenging task for the management of a company. It is recognized that companies become vulnerable to various supply chain disruptions and risks. The identification and management of these risks is therefore crucial for the effective management of the supply chains. In order to select the appropriate risk management actions, the relationship between these actions must be investigated. Even though much research has been conducted in the field of purchasing and supply management, only a small part of it has dealt with the risk management performance of supply chains. This study empirically investigates the supplier orientation, supplier dependency, customer orientation, and integrated systemic buying that influence a company's supply risk management performance. A survey research design is adapted for the study. Our study shows the statistical (regression) linkages of the variables (supplier orientation, supplier dependency, customer orientation, and systemic purchasing) with supply risk management performance. The results of this study are based on the data collected from 165 large and medium-sized Finnish companies.

1. Introduction

In today's rapidly changing networked environment, purchasing has become a vital function for companies that want to be successful (Zsidisin, 2003). The accelerating purchasing trend is particularly related to the outsourcing of non-core activities to suppliers and service providers (Bustinza et al., 2010). This transformation has changed the traditional role of purchasing. Companies have recognized the increasing importance of purchasing and so are concentrating more effort on coordinating and developing their supply networks (Hallikas et al., 2004). At the same time, the role of purchasing has changed from an operational short-term activity to tactical and strategic long-term partnerships between suppliers (Kraljic, 1983).

An increasing amount of emphasis is placed on the management of the firm's external resources. This is mainly due to the outsourcing of companies' activities and the reliance on external competencies in new product and service development. The monetary value of the purchasing and supply activities can be significant in terms of a firm's turnover, which evidently increases the strategic importance of firms' supply chains and networks (Zsidisin, 2003). However, this dependency also leaves companies vulnerable to supply chain disturbances and risks. In recent studies, it has been shown that the financial impact of supply chain risks can be vast (Norrman and Jansson, 2004). Furthermore, from this cost-avoidance perspective, effective supply processes may also play an important role in many value-added activities that increase customer satisfaction with an offer. Customers want their services and products at the right place at the right time and in the right quality and quantity. This causes considerable challenges to the resiliency of the supply chain networks (Christopher and Peck, 2004).

The importance of studying the relationship of supply risks with the supply chain performance has been underpinned in many studies in the supply chain risk management literature (Chopra and Sodhi, 2004; Sheffi, 2005). These studies approach the topic conceptually, without providing much empirical evidence regarding these relationships. In fact, only a very few studies have empirically approached the association of risks with supply chain performance. The empirical performance has been studied by Hendrics and Singhal (2003, 2005), who investigate the effect of supply chain disruption on a company's stock price and equity risks, as well as Wagner and Bode (2008), who explore the supply chain performance along several dimensions of risk.

In order to adopt the specific standpoint of supply chain performance, this study investigates supply chain risk management (SCRM) performance from the perspective of the buying company. More precisely, we study the connection between

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supply management actions and SCRM performance. Connected with the risk management process, Hoffmann (2012) found that risk monitoring and mitigation contribute to the risk management performance; however, risk identification did not seem to have a linkage with risk management performance. The SCRM performance has not been significantly adapted in the extant studies of supply chain risk management, even though its importance has been recognized (Ellegaard, 2008).

The objective of this paper is to investigate whether supplier orientation, supplier dependency, customer orientation, and integrated systemic buying influence a company's supply risk management performance. For the purpose of the study, we have developed a survey instrument and conducted a survey of Finnish companies to empirically elaborate their risk management practices. The paper is structured as follows. First, we conduct a literature review concerning supply risk management and the connected areas in purchasing and supply management. In the second part of the paper, the empirical evidence is provided by analyzing the survey data.

2. Risk in purchasing and supply

Risks and uncertainties are inherent in any supply chain. Supply risk can be defined as “the probability of an incident associated with inbound supply from individual supplier failures or the supply market occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety” (Zsidisin, 2003). Uncertainty in supplier relationships may arise from different sources such as supply, demand, and environment (Christopher and Peck, 2004). Our level of analysis is set on purchasing and supply, which plays a remarkable role in supply chain risk management development (Zsidisin et al., 2000).

There is a vast amount of risk categories associated with supply management. Treleven and Schweikhart (1988) presented five risk categories associated with purchasing and sourcing: disruption of supply risk; price risk; stock and schedule risk; technology risk; and quality risk. In addition, the risk category of “availability risk” is used to refer to deficiencies in material or service in a specific time frame. It is closely related to the disruption and scheduling risks because availability risk can arise from disturbances in supply chain processes and lead-time (Steele and Court, 1996). Moreover, it has recently been argued that information flow risks (e.g. accuracy, system security, knowledge leaks) have received less attention in the SCRM literature, even though most of the value adding activities in a supply chain are triggered by information flow (Tang and Musa, 2011).

Many supply chain business risks are related to the outsourcing of activities. For example, Lonsdale (1999) states that companies are disappointed with the results they have achieved from outsourcing because of a lack of decision-making and risk management methodologies. His study shows that the main risks of outsourcing are related to the loss of resources and capabilities that ensure the competitiveness of the company as well as the danger of dependency on suppliers. Closely related to the outsourcing risk is this risk of dependency on suppliers (Wagner and Bode, 2006). The implications of the dependency risk are that the companies are being contractually bound to certain suppliers and they get lock-in of the suppliers. This increases transactions costs in the supplier relationships (Hallikas et al., 2005). The risk of losing strategic knowledge in a relationship and the conflicts associated with the utilization of intellectual property rights are also important categories of supply risks, especially in technology collaborations (Norrman and Jansson, 2004).

The firm's brand and image value has also been added to the supply management risk list. This is largely due to the increasing emergence of responsible and supply management, which incorporates tighter responsibility and visibility requirements on the source of the end products (Koplin et al., 2007). For example, poor quality, late deliveries, and any kind of indications of problems associated with supply chain responsibility are likely to cause high risks to the brand and thus harm the reputation of the firm.

3. Risk management and supply chains

Together with the risk management strategies, supply chain management strategies are designed to elicit better quality information and improved understanding about the competitive environment throughout the supply chain (Ritchie and Brindley, 2000). There are a variety of management actions that can reduce or transfer the impact and likelihood of identified risks in supply chains. Some of these management actions are directly related to risk management and control. However, some generic supply management strategies also have a potential impact on supply risk management performance.

The traditional actions necessary to manage risks in terms of purchasing and supply are the over capacity or buffer activities like developing and maintaining multiple sources for strategic items, holding safety stock, and a well-stocked supply pipeline (Zsidisin et al., 2000). Tang (2006) reviewed various quantitative models for managing supply chain risks. He concluded that these quantitative models are primarily designed for managing operational risks, not disruption risks. There are also some specific risk management strategies for the supply source. For example, Jüttner et al. (2003) propose the avoidance of dropping specific products, geographical areas, or suppliers in order to reduce supply risks.

Colicchia and Strozzi (2012) conducted a systematic review on supply chain risk management. They identified a few studies that empirically outline the relationship between supply chain risk and performance (Hendricks and Singhal, 2003, 2005; Hendricks et al., 2009; Tomlin, 2006; Wagner and Bode, 2008). These studies have mainly focused on the effects of risk management on operational or business performance. In addition, we featured a systematic search of the databases (ISI Web of knowledge and Scopus) for empirical studies that address both supply risk management and risk management performance. The literature review was not limited to specific time of period. Keywords “supply chain risk management” and “risk management performance” were set as search criteria to cover topics in refereed articles in the field of business and engineering (see e.g. Burgess et al., 2006; Chen and Paulraj, 2004; Evangelista, 2014). Other literature like conference papers, editorial notes, reviews and research reports were excluded from the search results. The initial search produce 128 hits from Scopus and 113 hits from ISI web of social sciences. After elimination of duplicates and assessment of the relevance of the content in papers 35 articles remained for further investigation. Within this review, we have highlighted those references that address both supply risk management and risk management performance especially from the purchasing and supply management perspective. The study by Wieland and Wallenburg (2012) investigates the effect of agility and robustness on supply chain performance. According to the study, both agility and robustness are important in improving performance. In addition, robustness turns out to be the real driver of business performance in the supply chain. The results indicate that supply chain risk management has an effect on business performance. Hoffmann et al. (2013) studied the effect of the supply risk management process on supply risk management performance in the purchasing and supply management context. According to their findings, the maturity of the supply risk mitigation and supply risk management processes positively influences supply risk management performance. Their findings also indicate that environmental and behavioral uncertainty have a negative effect on supply risk management performance.